

AMENDMENTS TO THE CLAIMS

Please amend the claims of the present application as set forth below. In accordance with the PTO's revised amendment format, a detailed listing of all claims has been provided. This listing of claims will replace all prior versions and listings of claims in the application. Changes to the claims are shown by strikethrough or double brackets (for deleted matter) and underlining (for added matter).

By way of overview, claims 1-44 are currently pending. More specifically, the status of the claims is indicated below:

- a) Claims 30-32 are currently amended;
- b) Claims 1-8 and 10-29 are original;
- c) Claim 9 has the status of previously presented; and
- d) Claims 33-44 are new.

Listing of Claims

1. (Original) A server system, comprising:

one or more computers;

an application executing on the computers to receive and process client requests;

and

a constraint system to constrain operation of the application according to multiple different constraints, the constraint system comprising a hierarchy of constraint layers, with each constraint layer containing a set of one or more constraints that customize operation of the application.

1 2. (Original) A server system as recited in claim 1, wherein the hierarchy
2 comprises a constraint layer that contains legally mandated constraints to constrain
3 operation of application according to legal principles.
4

5 3. (Original) A server system as recited in claim 1, wherein the hierarchy
6 comprises a constraint layer that contains company-mandated constraints to constrain
7 operation of the application according to preferences of a company that operates the
8 application.
9

10 4. (Original) A server system as recited in claim 1, wherein the hierarchy
11 comprises a constraint layer that contains customer constraints to constrain operation of
12 the application according to preferences of customers.
13

14 5. (Original) A server system as recited in claim 1, wherein the hierarchy
15 comprises a constraint layer that contains cultural constraints to constrain operation of the
16 application according to cultural aspects.
17

18 6. (Original) A server system as recited in claim 1, wherein the hierarchy
19 comprises a constraint layer that contains end user constraints to constrain operation of
20 the application according to preferences of an end user.
21

22 7. (Original) A server system as recited in claim 1, wherein the constraint layers
23 are organized within the hierarchy such that a first constraint layer limits a second
24 constraint layer but the second constraint layer does not limit the first constraint layer.
25

1 8. (Original) A server system as recited in claim 1, further comprising a constraint
2 resolver to resolve the constraint layers so that operation of the application is constrained
3 by a sum of the constraints in the layers.

4
5 9. (Previously presented) A server system comprising:
6 one or more computers; and
7 a multi-layer application executing on the computers to handle client requests, the
8 multi-layer application comprising:

9 a problem-solving logic layer to process the client requests according to an
10 associated problem domain, the problem-solving logic layer containing one or more
11 execution models to perform various sets of tasks when processing the client requests, the
12 problem-solving logic layer producing replies to the client requests;

13 a presentation layer to structure the replies produced by the problem-solving logic
14 layer in a manner that makes the replies presentable on various client devices; and

15 a constraint hierarchy of multiple constraint layers, each constraint layer
16 containing a set of one or more constraints that specify how the replies should be
17 structured to customize the replies for specific sets of conditions.

18
19 10. (Original) A server system as recited in claim 9, wherein constraint layers can
20 be selectively added or removed from the constraint hierarchy independently of other
21 layers in the multi-layer application to produce different sets of constraints.

22
23 11. (Original) A server system as recited in claim 9, wherein the constraint
24 hierarchy comprises a constraint layer that contains legally mandated constraints that
25

1 constrain the presentation layer to structure the replies to comply with certain legal
2 principles.

3
4 12. (Original) A server system as recited in claim 9, wherein the constraint
5 hierarchy comprises a constraint layer that contains company-mandated constraints that
6 constrain the presentation layer to structure the replies according to preferences of a
7 company that operates the application.

8
9 13. (Original) A server system as recited in claim 9, wherein the constraint
10 hierarchy comprises a constraint layer that contains customer-oriented constraints that
11 constrain the presentation layer to structure the replies according to preferences of
12 customers.

13
14 14. (Original) A server system as recited in claim 9, wherein the constraint
15 hierarchy comprises a constraint layer that contains cultural constraints that constrain the
16 presentation layer to structure the replies according to cultural aspects.

17
18 15. (Original) A server system as recited in claim 9, wherein the constraint
19 hierarchy comprises a constraint layer that contains end user constraints that constrain the
20 presentation layer to structure the replies according to preferences of end users.

21
22 16. (Original) A server system as recited in claim 9, wherein the constraint layers
23 can be removed or added to modify the set of constraints imposed on structuring the
24 replies.

1 17. (Original) A computer software architecture embodied on one or more
2 computer-readable media, comprising:

3 a constraint hierarchy of multiple constraint layers, each constraint layer
4 containing a set of one or more constraints that constrain operation of an application, the
5 constraint layers being organized within the constraint hierarchy such that a first
6 constraint layer limits a second constraint layer but the second constraint layer does not
7 limit the first constraint layer; and

8 a constraint resolver to resolve the constraint layers so that operation of the
9 application is constrained by a set of the constraints in the constraint layers.
10

11 18. (Original) A computer software architecture as recited in claim 17, wherein
12 constraint layers are selectively added to or removed from the constraint hierarchy to
13 form different sets of constraints on the operation of the application.
14

15 19. (Original) A computer software architecture as recited in claim 17, wherein
16 the constraint hierarchy comprises a constraint layer that contains legally mandated
17 constraints to constrain operation of the application according to legal principles.
18

19 20. (Original) A computer software architecture as recited in claim 17, wherein
20 the constraint hierarchy comprises a constraint layer that contains company-mandated
21 constraints to constrain operation of the application according to preferences of a
22 company that operates the application.
23
24
25

1 21. (Original) A computer software architecture as recited in claim 17, wherein
2 the constraint hierarchy comprises a constraint layer that contains customer constraints to
3 constrain operation of the application according to preferences of customers.
4

5 22. (Original) A computer software architecture as recited in claim 17, wherein
6 the constraint hierarchy comprises a constraint layer that contains cultural constraints to
7 constrain operation of the application according to cultural aspects.
8

9 23. (Original) A computer software architecture as recited in claim 17, wherein
10 the constraint hierarchy comprises a constraint layer that contains end user constraints to
11 constrain operation of the application according to preferences of an end user.
12

13 24. (Original) A method comprising:
14 storing a hierarchy of constraints, each constraint being configured to constrain
15 operation of a server application; and
16 evaluating an operation of the server application in view of the hierarchy of
17 constraints to modify operation according to the constraints in the hierarchy.
18

19 25. (Original) A method as recited in claim 24, further comprising adding or
20 removing constraints from the hierarchy to alter [[operation of]] the server application.
21

22 26. (Original) A method as recited in claim 24, wherein the hierarchy of
23 constraints comprises constraints selected from a group of constraints comprising:

24 legally mandated constraints to constrain operation of the application according to
25 legal principles;

1 company-mandated constraints to constrain operation of the application according
2 to preferences of a company that operates the application;

3 customer constraints to constrain operation of the application according to
4 preferences of customers;

5 cultural constraints to constrain operation of the application according to cultural
6 aspects; and

7 end user constraints to constrain operation of the application according to
8 preferences of an end user.

9
10 27. (Original) A method for operating a server application, comprising:

11 receiving requests from multiple clients;

12 processing the requests to produce replies;

13 structuring the reply to define how the reply will appear when presented at the
14 client; and

15 constraining said structuring according to a set of one or more constraints to
16 customize appearance of the reply, the constraints comprising:

17 legally mandated constraints to constrain appearance of the reply according to
18 legal principles;

19 company-mandated constraints to constrain appearance of the reply according to
20 preferences of a company that operates the application;

21 customer constraints to constrain appearance of the reply according to preferences
22 of customers;

23 cultural constraints to constrain appearance of the reply according to cultural
24 aspects; and

1 end user constraints to constrain appearance of the reply according to preferences
2 of an end user.

3
4 28. (Original) A method as recited in claim 27, further comprising adding or
5 removing constraints to change the set of constraints being applied to the structuring of
6 the reply.

7
8 29. (Original) One or more computer-readable media comprising computer-
9 executable instructions that, when executed, direct an application server to:

10 generate replies in response to client requests; and

11 structure the replies according to a hierarchy of constraints to customize the
12 replies, the constraints comprising a combination of one or more following constraints:

13 legally mandated constraints to constrain appearance of a reply according to legal
14 principles;

15 company-mandated constraints to constrain appearance of the reply according to
16 preferences of a company that operates the application;

17 customer constraints to constrain appearance of the reply according to preferences
18 of customers;

19 cultural constraints to constrain appearance of the reply according to cultural
20 aspects; and

21 end user constraints to constrain appearance of the reply according to preferences
22 of an end user.

23
24 30. (Currently amended) [[The]] A server system as recited in claim 1, wherein
25 the constraints are expressed as metadata.

1
2 31. (Currently amended) ~~[[The]]~~ A server system as recited in claim 1, wherein
3 the constraints of one constraint layer can have the effect of overriding the constraints of
4 another, lower, constraint layer.

5
6 32. (Currently amended) ~~[[The]]~~ A server system as recited in claim 1, wherein
7 the constraints define presentation aspects of a reply sent to a customer.

8
9 33. (New) A server system as recited in claim 1, wherein each constraint layer
10 represents a different source entity that customizes the application.

11
12 34. (New) A server system as recited in claim 9, wherein each constraint layer
13 represents a different source entity that customizes the application.

14
15 35. (New) A computer software architecture as recited in claim 17, wherein each
16 constraint layer represents a different source entity that customizes the application.

17
18 36. (New) A method as recited in claim 24, wherein the hierarchy includes
19 multiple constraint layers, and wherein each constraint layer represents a different source
20 entity that customizes the application.

21
22 37. (New) A method as recited in claim 27, wherein the constraints are associated
23 with a hierarchy having multiple constraint layers, and wherein each constraint layer
24 represents a different source entity that customizes the application.
25

1 38. (New) One or more computer-readable media of claim 29, wherein the
2 hierarchy includes multiple constraint layers, and wherein each constraint layer
3 represents a different source entity that customizes the application.
4

5 39. (New) A server system as recited in claim 1, wherein the hierarchy comprises
6 each of:

7 a constraint layer that contains legally mandated constraints to constrain operation
8 of application according to legal principles;

9 a constraint layer that contains company-mandated constraints to constrain
10 operation of the application according to preferences of a company that operates the
11 application;

12 a constraint layer that contains customer constraints to constrain operation of the
13 application according to preferences of customers;

14 a constraint layer that contains cultural constraints to constrain operation of the
15 application according to cultural aspects;

16 a constraint layer that contains end user constraints to constrain operation of the
17 application according to preferences of an end user.
18

19 40. (New) A server system as recited in claim 9, wherein the constraint hierarchy
20 comprises each of:

21 a constraint layer that contains legally mandated constraints that constrain the
22 presentation layer to structure the replies to comply with certain legal principles;
23
24
25

1 a constraint layer that contains company-mandated constraints that constrain the
2 presentation layer to structure the replies according to preferences of a company that
3 operates the application;

4 a constraint layer that contains customer-oriented constraints that constrain the
5 presentation layer to structure the replies according to preferences of customers;

6 a constraint layer that contains cultural constraints that constrain the presentation
7 layer to structure the replies according to cultural aspects; and

8 a constraint layer that contains end user constraints that constrain the presentation
9 layer to structure the replies according to preferences of end users.

10
11 41. (New) A computer software architecture as recited in claim 17, wherein the
12 constrain hierarchy comprises each of:

13 a constraint layer that contains legally mandated constraints to constrain operation
14 of the application according to legal principles;

15 a constraint layer that contains company-mandated constraints to constrain
16 operation of the application according to preferences of a company that operates the
17 application;

18 a constraint layer that contains customer constraints to constrain operation of the
19 application according to preferences of customers;

20 a constraint layer that contains cultural constraints to constrain operation of the
21 application according to cultural aspects; and

22 a constraint layer that contains end user constraints to constrain operation of the
23 application according to preferences of an end user.

1 42. (New) A method as recited in claim 24, wherein the hierarchy of constraints
2 comprises each of:

3 legally mandated constraints to constrain operation of the application according to
4 legal principles;

5 company-mandated constraints to constrain operation of the application according
6 to preferences of a company that operates the application;

7 customer constraints to constrain operation of the application according to
8 preferences of customers;

9 cultural constraints to constrain operation of the application according to cultural
10 aspects; and

11 end user constraints to constrain operation of the application according to
12 preferences of an end user.

13
14 43. (New) A method as recited in claim 27, wherein the constraints comprise each
15 of the legally mandated constraints, the company-mandated constraints, the customer
16 constraints, the cultural constraints, and the end user constraints.

17
18 44. (New) One or more computer-readable media of claim 29, wherein the
19 constraints comprise each of the legally mandated constraints, the company-mandated
20 constraints, the customer constraints, the cultural constraints, and the end user
21 constraints.